

SOKOLOV, Ye. N.; MIKHALEVSKAYA, M.B.

Change in the relationship between stimulus and reaction. Vop.psikhol. 7  
no.1:57-72 Ja-F '61. (MIRA 14:3)

1. Kafedra psikhologii Moskvskogo gosudarstvennogo universiteta.  
(Reflexes)

SOKOLOV, Ye.N.; PARAMONOVA, N.P.

Extinction of orientation reactions. Zhur. vys. nerv. deiat. 11  
no.1:3-11 Ja-F '61. (MIRA 14:5)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova i  
Institut defektologii APN RSFSR,  
(CONDITIONED RESPONSE) (ORIENTATION)

SOKOLOV, Ye.N.; PARAMONOVA, N.P.

Dynamics of the orientation reflex during the development of  
sleep inhibition in man. Zhur.vys. nerv. deiat. 11 no.2:206-215  
Mr-Apr '61. (MIRA 14:6)

1. Lomonosov University and Institute of Defectology, R/S.F.S.R.  
Academy of Pedagogical Sciences, Moscow.  
(CONDITIONED RESPONSE) (SLEEP)

SOROLOV, Ye.N.

Effect of darkness on the human electroencephalogram. *Zhur.vys.nerv.*  
deiat. 11 no.3:394-401 My-Je '61. (MIRA 14:7)

1. Chair of Physiology of Higher Nervous Activity, Chair of Psychology,  
Moscow University.  
(ELECTROENCEPHALOGRAPHY) (LIGHT--PHYSIOLOGICAL EFFECT)

DULENKO, V.P.; SOKOLOV, Ye.N.

Response reactions of the external geniculate body of an anesthetized cat to light flashes of varying frequency and strength. Zhur. vys. nerv.deiat. 11 no.5:943-950 S-O '61. (MikA 15:1)

1. Chair of Animal's Physiology and Physiology of Higher Nervous Activity, Moscow University.  
(OPTIC THALAMUS) (REFLEXES)  
(LIGHT-PSYCHOLOGICAL EFFECT)

*Sokolov, Ye. N.*

*5*

PHASE I BOOK EXPLOITATION

SOV/6205

Makarchenko, A. F., Resp. Ed.

Osnovnyye voprosy elektrofiziologii tsentral'noy nervnoy sistemy  
(Basic Problems in the Electrophysiology of the Central Nervous System) Kiyev, Izd-vo AN UkrSSR, 1962. 231 p. Errata slip inserted. 1600 copies printed.

Sponsoring Agency: Vsesoyuznoye fiziologicheskoye obshchestvo im. I. P. Pavlova. Institut fiziologii im. A. A. Bogomol'tsa Akademii nauk USSR.

Eds.: A. F. Makarchenko, Resp. Ed.; D. S. Vorontsov, P. G. Kostyuk, F. N. Serkov; Resp. Secretary: I. P. Semenyutin; Tech. Ed.: Yu. M. Bokhno.

PURPOSE: This book is intended for physiologists who are interested in recent advances in electrophysiology.

Card 1/3

5

Basic Problems in the (Cont.)

SOV/6205

COVERAGE: The present book is a collection of articles presented at the Symposium on Electrophysiology held in Kiyev on 1-2 July 1961. The articles in the collection are grouped into the following sections: 1) Electrophysiology of neurons (sensory, motor, and relay neurons of the spinal cord, and neurons of the retina); 2) Induced electrical potentials of the cerebral cortex; and 3) Background rhythms of the cerebral cortex. References are given following the individual chapters. No personalities are mentioned.

TABLE OF CONTENTS:

General Problems of Neuron Electrophysiology ( P. G. Kostyuk, Kiyev)	5
Electrophysiology of Retinal Neurons (A. L. Byzov, Moscow)	29
Electrophysiology of Neurons of the Spinal Ganglia of Frogs (A. A. Lev, Leningrad)	40
Card <sup>2</sup> / <sub>3</sub>	

S/245/62/000/001/001/002  
1015/1215

AUTHORS: Sokolov, Ye N and Mikhalevskaya, M B.

TITLE: The testing-stimulus technique

PERIODICAL: Voprosy psikhologii, no 1, 1962, 28-36

TEXT: This technique is based on Bayes' formula and on the relationship between the latent period of the alpha-rhythm block and the intensity of the light stimulus. It is time-saving (by reducing the number of tests to three) and leads to the determination of the mean value and the zone of threshold intensities, the most probable threshold value, and the relation of the stimulus to a certain group of intensities which become more exact the greater the number of repeated stimuli. The results obtained with this technique correspond to those of the classical minimum-deviation method which is employed for the determination of threshold values. There are 2 figures and 1 table.

ASSOCIATION: Kafedra psikhologii MGU (Chair of Psychiatry, MGU)

Card 1/1



DULENKO, V.P.; SOKOLOV, Ye.N.

"Spontaneous" rhythmical activity in the optic tract of a cat.  
Nauch.dokl.vys.shkoly; biol.nauki no.4:79-83 '62. (MIRA 15:10)

1. Rekomendovana kafedrami fiziologii vysshey nervnoy deyatel'nosti  
Moskovskogo gosudarstvennogo universiteta im. Lomonosova.  
(VISION) (ELECTROPHYSIOLOGY)

SOKOLOV, Ye.N.

Activation of the electroretinogram in the rabbit and its relation  
to the orienting reflex. Zhur.vys.nerv.deiat. 12 no.1:145-154  
Ja-F '62. (MIRA 15:12)

1. Moscow State university.  
(ELECTRORETINOGRAPHY) (REFLEXES) (ORIENTATION)

SOKOLOV, Ye.N.

Orienting reflex as a cybernetic system. Zhur.vys. nerv. deist.  
13 no.5:816-830 S-0'63 (MIRA 16:11)

1. Chair of Physiology of Higher Nervous Activity, Moscow  
University.

СОННИКОВ, Ye.N., red.; ГЕВШАКОВА, E.F., red.

[Orienting reflex and problems of reception under normal conditions and in pathology] Orientirovochnyi refleks i problemy retseptsii v norme i patologii. Pod red. E.N. Sonnikova. Moskva, Prosveshchenie, 1984. 162 p.

(UIRA 1719)

1. Akademiya pedagogicheskikh nauk RSFSR, Moscow. Institut defektologii.

L 367h1-65 EWT(d)/EEC(k)-2/EEC-l/EED-2/ENG(c)/EMP(1)/EEC(g)---Po-l/Pq-l/  
Pg-l/Pk-l IJP(c) BB/GG/GS S/0000/64/000/000/0242/0279  
ACCESSION NR: AT5008644

55  
54  
B41

AUTHOR: Sokolov, Ye. N.

TITLE: Modeling the properties of the nervous system

SOURCE: Kibernetika, myshleniye, zhizn' (Cybernetics, thought processes, and life).  
Moscow, Izd-vo Mysl, 1964, 242-279

TOPIC TAGS: nervous system modeling, nervous stimulus, nervous system extrapolation,  
neuron extrapolation, behavior control, information control, molecular memory,  
cybernetics, reflex theory, image formation

ABSTRACT: In dealing with the problem of reflexes, cybernetics concentrates its  
attention on the study of image formation and image function by comparing the complex  
behavior of living organisms with the response of self-adapting automata. Consequently,  
during the analysis of the representation process, one can view the nervous system as  
a device modeling the external world by specific changes within its internal structure.  
In this sense, a definite totality of changes within the nervous system is isomorphic  
to the external interaction which it is supposed to picture. In connection with the problem  
of the control of behavior, this paper studies certain aspects of nervous activity as a  
modeling of external interactions. A discussion of the nervous model of the external

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L 36741-65

ACCESSION NR: AT5008644

stimulus is followed by a study of the extrapolating capabilities of the nervous system, the control of behavior, the orientation reflex as a regulator of information, modeling at the neuron level, and the extrapolation neurons and the molecular mechanism of the memory. The resulting ideas lead the author to the conclusion that nervous system modeling exhibits active characteristics of the imaging process. It seems that the practical activity represents the actual adequacy criterion for the given nervous model. Orig. art. has: 3 formulas and 15 figures.

ASSOCIATION: none

SUBMITTED: 03Nov84

ENCL: 00

SUB CODE: LS, DP

NO REF SOV: 006

OTHER: 003

Bionics

P

Card 2/2 *ls*

VORONIN, G.V.; TOT, S.M.; SOROKIN, Ye.N.

Amplitude-phase frequency analysis of retina biopotentials during sinusoidal light stimulation. *Biophysika* 9 no. 1: 94-103 '64. (MIRA 17:7)

1. Institut avtomatiki i telemekhaniki AN SSSR, Moskva i Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta imeni Lomonosova.

KAREMOVA, M.M.; BOWDEN R.M. [Bowden, I.M.]; SOXOMOV, Ye.N.

Extinction of the orientation receptor following a circular  
cutting and removal of the auditory cortex. Zhur. vys. nerv.  
defekt. 14 no.3:459-467 My-Je '64. (MIRA 17:11)

1. Chair of Physiology of Higher Nervous Activity, Moscow  
University, and Stanford University, U.S.A.



ACCESSION NR: AP4044433

S/0247/64/014/004/0608/0617

AUTHOR: Bouden, D.; Sokolov, Ye. N.; Karimova, M. M. B

TITLE: Selective extinction of orienting reflex to complex acoustic and multimodal stimuli

SOURCE: Zhurnal vysshey nervnoy deyatel'nosti, V. 14, no. 4, 1964, 608-617

TOPIC TAGS: orienting reflex, acoustic stimulation, multimodal stimulation, orienting response, nervous model, auditory cortex, acoustic analyser

ABSTRACT: A study was made of the orienting response of dogs to complex stimuli after circular cutting or ablation of the auditory cortex. Electrodes were implanted in the auditory and motor cortex, the reticular system of the midbrain, and the thalamus. Respiration was recorded simultaneously with the obtaining of an electromyogram of the ear. The ability to discriminate complex stimuli was estimated by the appearance of an orienting response when a component of

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ACCESSION NR: AP4044433

the complex was changed (or omitted), after preliminary extinction of the reflex of orientation to the complex stimulus. It was found that the "nervous model of the stimulus" involves integration of complex stimuli addressed to one or several analysers. This sensory integration is not precluded by circular cutting of the auditory cortex. Ablation of the main part of the auditory cortex disturbs the discrimination of acoustic stimuli which differ by the sequence of components. It is assumed that the "nucleus" of the cortical part of the acoustic analyser is responsible for the differentiation of acoustic complexes and that the transcortical connections are not involved in the formation of multimodal complexes. Orig. art. has: 2 tables and 3 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University); Stanfordskiy universitet, SShA (Stanford University, SShA)

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ACCESSION NR: AP4044433

SUB CODE: LS

SUBMITTED: 04Oct63

ENCL: 00

SUB CODE: LS

NO REF SOV: 011

OTHER: 007

Card 3/3

DULENKO, V.I., KOROLOV, Ye.N.

Activation and inactivation of the receptive potentials of the retina, on lam and tractus opticus in anesthetized cats. Zhur. vys. nerv. deiat. 12 no.9:827-832 1968.

(NDR: 17:12)

1. Chair of Physiology of Man and Animals and Chair of Higher Nervous Activity, Moscow University.

L 27632-66

ACC NR: AF6018428 (A,N) SOURCE CODE: UR/0325/65/000/003/0068/0071

AUTHOR: Dulenko, V. P.; Sokolov, Ye. N.

ORG: Department of Animal Physiology, Moscow State University im. M. V. Lomonosov  
(Kafedra fiziologii zhivotnykh Moskovskogo gosudarstvennogo universiteta); Department  
of Physiology of Higher Nervous Activity, Moscow State University im. M. V. Lomonosov  
(Kafedra fiziologii vysshey nervnoy deyatel'nosti Moskovskogo gosudarstvennogo  
universiteta)

TITLE: Electric reactions of the optic chiasma of a narcotized cat subjected to light  
flashes of various frequencies and intensities

SOURCE: Nauchnyye doklady vysshey shkoly. Biologicheskkiye nauki, no. 3, 1965, 68-71

TOPIC TAGS: cat, bioelectric phenomenon, neurophysiology

ABSTRACT: Results are given from a study of the characteristics of potentials arriving at the chiasma of a narcotized cat in connection with light flashes of various intensities and frequencies. Analysis of the peak and slow wave of the biopotential of the chiasma indicates that the amplitude of the peak increases with an increase in the intensity of the light stimulus. The authors see the results as confirmation that response reactions in the form of a rise or fall of peak potentials during light stimulation are one indication of the mechanism of functional recruitment of the visual system. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 06 / SUBM DATE: 11Feb64 / ORIG REF: 008

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L 31334-65

ACCESSION NR: AP5006234

S/0247/65/015/001/0188/0189

AUTHOR: Sokolov, Ye. N.

20  
B

TITLE: Seminar on nervous system function modeling

SOURCE: Zhurnal vysshey nervnoy deyatel'nosti, v. 15, no. 1, 1965, 188-189

TOPIC TAGS: medical conference, neurology, nervous system, computer calculation, speech signal, speech recognition, digital computer

ABSTRACT: A seminar on problems involved in modeling nervous system functions on the individual neuron level, the neuron system level, and the level of the behavior of the entire organism, was held by Vil'nyus State University from 4 to 11 July 1964. Representatives from six Soviet cities presented papers at the seminar.

The meeting opened with a report by S. A. Kuznetsov (Laboratory of Biophysics, Moldavian Academy of Sciences, Kishinev) entitled "Electrophysiological Prerequisites for Constructing Artificial Neurons." Conclusive experiments based on intracellular elimination have revealed the basic

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ACCESSION NR: AP5006234

electrophysiological characteristics of isolated cortical neurons. It has been shown that there is a functional similarity between giant cortical pyramidal cells and the motor neurons of the spinal cord, and between short-axon stellate cortical neurons and the intercalary nerve cells of the spine. The electrophysiological characteristics of neurons were discussed in connection with their modeling.

V. M. Krol' (Institute of Automation and Telemechanics, Moscow) reported on the change in membrane characteristics under the influence of some pharmaceuticals. It was found that impulses obeying an "all or none" law are converted into propagating impulses which gradually change in amplitude.

E. Narushyavichus and R. Zhilyukas (Vil'nyus State University) reported on a method for the intracellular isolation of the electrical potentials of *Helix pomatia* giant neurons. It was found that there were several types of spike activity on the part of a single neuron.

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The report of N. A. Fedorenko (Institute of Applied Physics, Moldavian SSR, Kishinev) brought up the question of using the kinetics of enzyme processes in explaining the function of excitable membranes. On the basis of the chemical theory of Nakhmanzon, the author proposed a model depicting dynamic phenomena using a membrane.

A formal electronic model of a neuron was described by I. A. Lyubinskiy (Institute of Automation and Telemechanics, Moscow). On the basis of the general properties of nerve cell membranes, such phenomena as the addition, subtraction, and division of the number of impulses fed into the artificial neuron were explained.

K. Zhukauskas (Computer Center, Lithuanian Academy of Sciences) considered the possibility of constructing Boolean functions and neuron systems based on neurons lacking inhibiting inputs, which could be accomplished by utilizing the refractory and latent qualities of neurons. It was shown that cyclic processes in neuron chains permit the reproduction of the function of negation.

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ACCESSION NR: AP5006234

G. Vaytkyavichyus (Vil'nyus State University) proposed a formal model of a two-layered receptor field. Analogs of individual *Limulus* ommatidia, which are interconnected by lateral inhibition, were utilized as the first layer, and "on-off" elements were used in the second. Juxtaposition of these systems makes it possible to explain the breakdown of interacting receptors into separate concentric receptor fields which change their magnitude as a function of the intensity of input signals.

Ye. N. Sokolov (Moscow University) discussed the use of logical functions in describing different types of receptor fields on the level of the external geniculate body and the visual cortex. Particular attention was given to the use of probabilistic logic in describing the activity and readjustment of receptor fields.

Yu. G. Antomonov and I. D. Ponomarev (Institute of Cybernetics, Ukrainian Academy of Sciences) presented reports entitled "Energy Properties of Excitation" and "A Nonlinear Model of Nerve Tissue." The authors presented a model explaining a wide range of phenomena associated with

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ACCESSION NR: AP5006234

rhythm transforms, threshold changes, and reaction magnitudes. A particular feature of this model was that it could be used for explaining some qualities of the separate parts of nerve tissue.

Ye. N. Sokolov, E. N. Narushyavichyus, and V. Vanagas gave a report on "Modeling the Generation of Brain Biopotentials." This report, instead of considering the well-known linear models of brain bioelectrical potentials, discusses instead the influence of constant brain potential levels on induced potentials. A model embodying the characteristics of EEG's experimentally obtained with rhythmic stimuli and described by a nonlinear differential equation, has been realized on an MN-7M analog computer.

V. A. Dolyatovskiy (Institute of Cybernetics, Kiev) presented a report entitled, "The Biological Mechanisms of Speech Signal Formation and Their Modeling." The author proposed a model of word discrimination based on basic word structure. One of the features of the model is the use of logic filters for separating different types of enveloping speech signals (pattern recognition).

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L 31334-65

ACCESSION NR: AP5006234

I. A. Kulikov (Institute of Physiology, Ukrainian Academy of Sciences) proposed a digital electronic computer device modeling methods of formulating verbal concepts (according to Akh, Vygodskiy, and Rushkevich) based on the matching of elementary characteristics. After the standards have been presented and a learning period has taken place, the machine proceeds to make a classification of the test objects whose dynamics coincide with classifications by man.

A special session of the seminar was devoted to the use of a correlation method for processing experimental data. Particular attention was focused on correlation of the sequence of separate neuron signals.

In the concluding discussion of the seminar, the participants stressed the usefulness of modeling methods in studying the mechanisms of nervous processes at various levels of complexity.

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L 31334-65

ACCESSION NR: AP5006234

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: LS, DP

NO REF SOV: 000

OTHER: 000

FSB v. 1, no. 4

Card 7/7

SHAGLOV, Ye.N.

Neuronal mechanisms of "habituation" as the simplest form of conditioned response. Zhur. vys. nerv. deiat. 15 no 2:249-259 Mr-Apr '65. (MIRA 18:6)

L. Moskovskiy gosudarstvennyy universitet imeni A.V. Lomonosova.

DULENKO, V.F.; SOKOLOV, Ye.N.

Effect of nembutal on the electric potentials of a cat's retina  
and optic tract evoked by flickering light. Zhur. vys. nerv.  
deiat. 16 no. 1:88-95 Ja-F '66 (MIRA 19:2)

1. Kafedra fiziologii cheloveka i zhivotnykh i kafedra psikhologii  
Moskovskogo gosudarstvennogo universiteta imeni Lomonosova. Sub-  
mitted September 30, 1964.

AFANAS'YEV, Vasilii Gavrilovich; ALEKSEYEV, Aleksandr Onisimovich;  
SOKOLOV, Yevgeniy Nikolayevich; CHEREMISIN, M.S., doktor  
tekhn. nauk, red.

[Geodesy and mine surveying in the construction of tunnels  
and subways] Geodeziia i markshreideriia pri stroitel'stve  
tonnelei i metropolitenov. Moskva, Nedra, 1965. 299 p.  
(MIRA 18:9)

L 26633-65 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k)/EWP(b) Pf-L JD/HW  
 ACCESSION NR: AP5004271 S/0126/65/019/001/0101/0104

AUTHOR: Sokolov, Ye. N.; Gaydukov, M. G.; Petrova, S. N.

TITLE: Specific features of the first stage creep in nimonic-type alloy subjected to high-temperature thermomechanical treatment

SOURCE: Fizika metallov i metallovedeniye, v. 19, no. 1, 1965, 101-104

TOPIC TAGS: nimonic alloy, nimonic alloy creep, alloy thermomechanical treatment

ABSTRACT: The effect of high-temperature thermomechanical treatment (HTTMT) on the creep behavior of nimonic-type alloy has been investigated. Alloy specimens were rolled at 1080C with 25—30% reduction, water quenched, and aged at 750C for 16 hr. Creep tests at 500, 550, and 600C under a stress of 70—105 kg/mm<sup>2</sup> showed that the HTTMT considerably affects the alloy creep behavior: it decreases the initial deformation, prclongs the first creep stage, and reduces the creep rate and the total deformation of the first stage (see Fig. 1 of the Enclosure). Such behavior is explained by the decrease in the number of moving dislocations and the formation of a stable substructure. It is assumed that HTTMT has a more pronounced blocking effect on dislocations than the substructure formed in the first creep

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L 26633-65

ACCESSION NR: AP5004271

stage. This may be associated with a localization of the decomposition of solid solution around the dislocations, and also with the formation of dissolved atom clouds around the dislocations. Orig. art. has: 3 figures. [ND]

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals, AN SSSR)

SUBMITTED: 27Jan64

ENCL: 01

SUB CODE: MM

NO REF SOV: 012

OTHER: 008

ATD PRESS: 3188

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L 26633-65

ACCESSION NR: AP5004271

ENCLOSURE: 01

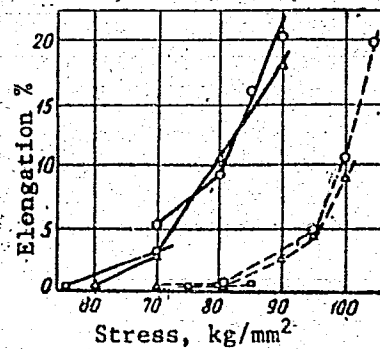


Fig. 1. Creep curves of nimonic-type alloy

— HTMT; --- regular treatment;  
o - 500; Δ - 550; □ - 600C.

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L 37013-65 EWT(m)/EWA(d)/T/EWP(k)/EWP(t)/EWP(b)/EWA(c) Pf-4 JD/HW

ACCESSION NR: AP5002269

S/0148/64/000/012/0112/0115

AUTHOR: Smirnov, M. A.; Shteynberg, M. M.; Sokolov, Ye. N.

TITLE: Effect of temperature and degree of plastic deformation on hardening of chromium-nickel-manganese austenitic steel

SOURCE: IVUZ. Chernaya metallurgiya, no. 12, 1964, 112-115

TOPIC TAGS: austenitic steel, chromium nickel manganese steel, plastic deformation, solid solution, solid solution decomposition, age hardening, heat treatment

ABSTRACT: The effects of temperature and of plastic deformation on the aging and hardening of Cr-Ni-Mn (12.4, 7.5, 8.9%, respectively) austenitic steel were studied. Rapid cooling of the steel from the hardening temperature to 400-1100C caused a breakdown of the solid solution, as confirmed by a reduction of the lattice constants and increase in hardness. Plastic deformation in this temperature range caused more intense breakdown than the cooling; the decomposition was greater the greater the degree of plastic deformation. Maximum decomposition

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L 37013-65

ACCESSION NR: AP5002269

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due to both cooling and plastic deformation occurred at 800-1100C. Prevention of preliminary decomposition was possible only at deformation temperatures below 1180C. The processes of solid solution decomposition affected the hardening of the steel on subsequent aging. The hardness of samples cooled to 600-1100C and aged, or subjected to plastic deformation at this temperature, decreased rapidly and attained optimum values only after deformation at 1180C. Some increase in hardness was observed in samples deformed at 20-400C. Thus cooling and plastic deformation must be considered in selecting conditions for the thermomechanical treatment and age hardening. Orig. art. has: 3 figures

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnical Institute);  
Institut fiziki metallov AN SSSR (Institute of the Physics of Metals, AN SSSR)

SUBMITTED: 17Mar64

ENCL: 00

SUB CODE: MM

NR REF<sup>v</sup> SOV: 006

OTHER: 000

*me*  
Card 2/2

S/123/61/000/015/007/032  
A004/A101

AUTHOR: Sokolov, Ye. P.

TITLE: Gang setting and multi-component lines for the machining of parts at the L'vovskiy zavod avtopogruzchikov (L'vov Automatic Loader Plant)

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 15, 1961, 1, abstract 15B2 (V sb. "Grupповaya tekhnol. v mashinostr. i priborostr.", Moscow - Leningrad, Mashgiz, 1960, 236-245)

TEXT: Gang processes of drilling, milling, turning and turret-lathe working of different parts have been designed under conditions of different lot production. The peculiarity of ganging-up automatic loader parts and the designing of equipment for their machining is caused by the considerable dimensions of these parts. In the gang flow mobile tables are prevailing on drilling machines making it possible to drill the parts according to one of the following three versions: 1. Some jigs for various parts are fixed on the mobile plate and catches are set in accordance with the inter-center distance of these parts. To pass over to the machining of another part it is necessary to shift the plate and

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A004/A101

Gang setting and multi-component lines ...

approach the corresponding jig to the spindle. 2. Apart from the mobile table vertical drilling machines are equipped with rapid-changing multi-spindle heads of various design which makes it possible to machine parts with different locations of apertures (each jig is arranged in a way necessary for the given part). 3. The machine is also fitted with multi-spindle heads suspended on its spindle. Thus a single-spindle machine is modernized into a multi-spindle one. 4. Methods of building gang fixtures for milling machines are used at the plant. 1) the multi-position fixtures with or without resetting by the group of simultaneously machined parts; 2) multi-position fixtures for the gang of parts with subsequent machining of parts with interchangeable setting spots; 3) multi-position fixtures for one part or a gang of parts with installed pneumatic drive; 4) multi-position fixtures for one part or a gang of parts actuated by a universal power drive. For a number of fixtures power drives are used having a clamping force of 800, 1,200, 1,400, 1,800, 1,950 and 2,500 kg at an air mains pressure of 4 atm. The following setting methods are prevailing on lathes: 1) machining parts of the stepped shaft type with hydraulic carriages and rapid-change copying devices; 2) machining of a gang of parts on special hydraulic copying machines; 3) internal boring of cylindrical parts 80 - 160 mm in diameter and 300 - 700 mm long; 4) knurling of the internal surfaces of the

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Gang setting and multi-component lines ...

S/123/61/000/015/007/032  
A004/A101

cylinder group 120 - 170 mm in diameter with pneumatic knurling devices; 5) knurling of the external surfaces of a gang of parts with a 3-roller device in the form of a floating steady with pneumatic clamping. Other setting methods which are of interest are the machining of a gang of parts in a 2-jaw chuck with interchangeable jaws on a turret lathe, the utilization of a gang-type draw-in attachment on thread-milling machines, etc. The author discusses briefly the planning of equipment in the mechanical assembly shops taking into account the introduction of multi-component gang lines. There are 11 figures.

D. Vaks

[Abstracter's note: Complete translation]

Card 3/3

BREZGUNOV, K.V.; MUKHAMEDZHANOV, M.; KAPIN, V.V.; SOKOLOV, Ye.P.,  
inzh. (g.Vil'nyus); CHAYKIN, G.V.; ISHUTIN, V., dorozhnyy master

Letters to the editor. Put' put.khoz. no.9:46-47 S '59.  
(MIRA 12:12)

1. Zamestitel' nachal'nika distantzii puti, g.L'vov (for Brezgunov).
2. Zamestitel' nachal'nika distantzii puti, st. Zhana-Samey, Kazakhskoy dorogi (for Mukhamedzhanov).
3. Starshiy dorozhnyy master, st.Shar'ya, Severnoy dorogi (for Kapin).
4. Starshiy dorozhnyy master, st.Millerovo, Yugo-Vostochnoy dorogi (for Chaykin).
5. Putevaya mashinnaya stantsiya-77 (PMS-77), st.Sukhoys, Oktyabr'skoy dorogi (for Ishutin).  
(Railroads)



MAKIN, A.N.; SOKOLOV, Ye.I.

Certain factors having an effect on the friction of rubber. Viliian.  
rub. sred na svois. mat. no.2:134-137 '63. (MIRA 17:10)

Effect of normal pressure and the rate of slipping on the anti-  
friction properties of rubber packings. Ibid.:138-143

Wear resistance of rubber packings working in couple with metal  
surfaces. Ibid.:144-151

ACCESSION NR: AT4023781

S/2723/63/000/002/0138/0143

AUTHOR: Sokolov, Ye. P.; Soshko, A.I.; Ty\*nny\*y, A.N.

TITLE: Effect of normal pressure and sliding rate on the lubricating properties of rubber packing

SOURCE: AN UkrRSR. Insty\*tut mashy\*nozhnavstva i avtomaty\*ky\*, L'viv. Vliyaniye rabochikh sred na svoystva materialov (Effect of active media on the properties of materials), no. 2, 1963, 138-143

TOPIC TAGS: friction, lubrication, rubber packing, rubber packing pressure, rubber packing sliding

ABSTRACT: The laws of external friction, reflecting the relationship between frictional forces and normal pressures for smooth hard surfaces, are generally used without change for rubber-metal friction pairs. These laws do not take into account the effect of such important factors as the variable sliding rate, the wide range of normal pressures, the type of lubricant, and the properties of the rubber. G.M. Bartenev (DAN SSR, 103, No. 6, 1017, 1955) first showed that a relationship can be derived, depending on many factors (see Fig. 1 of the enclosure), for the friction between rubber and a solid surface. Investigations of the effect of sliding and pressure on friction were performed on the MI friction

Card 1/3

ACCESSION NR: AT4023781

machine (for rotary motion) and on the IMA T machine (for reciprocal motion). Oil-proof rubber packings were tested. It was established that the sliding of rubber over steel leads both to an increase in friction due to the greater adhesion and to a decrease in friction due to a decrease of the contact area. Friction increases at the same rate as pressure up to a certain value, above which the rubber is destroyed. The increase in friction does not depend on the type of lubricant. Orig. art. has: 4 figures.

ASSOCIATION: Insty\*tut mashy\*noznavstva i avtomaty\*ky AN UkrRSR, Lvov (Institute of Machine Technology and Automation, AN UkrRSR)

SUBMITTED: 00

DATE ACQ: 10Apr64

ENCL: 01

SUB CODE: MT

NO REF SOV: 007

OTHER: 002

Card 2/3

ACCESSION NR: AT4023781

ENCLOSURE: 01

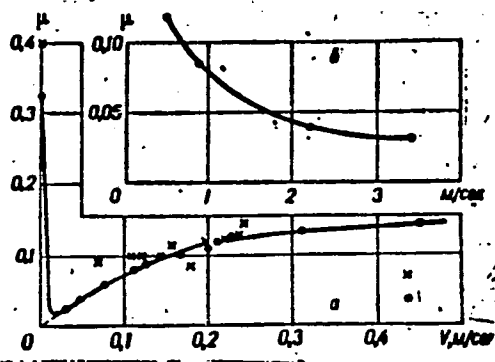


Fig. 1. Dependence of the coefficient of friction on the sliding rate:  
a - according to the data of Bartenev for a viscous lubricant and a  
standard pressure of  $80 \text{ mm/m}^2$ ; b - according to the data of Shannikov during water lubrication.

Card 3/3

Co

Coating of electrodes for arc welding of thin steel. P. V. Sukolov. U.S.S.R. 66,132, Apr. 30, 1946. Electrode for arc welding of low-carbon and low-alloy steels 0.8-3.0 mm. thick are coated with a compn. consisting of Ti ore concentrate 70, Mn ore 7, KNO<sub>3</sub> 1, edible flour 90, ferromanganese 12, ferrosilicon 10, and Na silicate 40 parts by wt. M. Hosh

PROCESSING AND PROPERTIES INDEX

COMMON ELEMENTS

COMMON VARIANTS

ASB SLA METALLURGICAL LITERATURE CLASSIFICATION

SECOND SYMBOL

THIRD SYMBOL

FOURTH SYMBOL

FIFTH SYMBOL

SIXTH SYMBOL

SEVENTH SYMBOL

EIGHTH SYMBOL

NINTH SYMBOL

TENTH SYMBOL

ELEVENTH SYMBOL

TWELFTH SYMBOL

THIRTEENTH SYMBOL

FOURTEENTH SYMBOL

FIFTEENTH SYMBOL

SIXTEENTH SYMBOL

SEVENTEENTH SYMBOL

EIGHTEENTH SYMBOL

NINETEENTH SYMBOL

TWENTIETH SYMBOL

COMMON ELEMENTS

COMMON VARIANTS



SOKOLOV, YE., V., LAUREATE OF STALIN PRIZE

Pa. 173T42

USSR/Engineering - Welding, Equipment

Nov 50

"Electrodes With High-Quality Coating and Their Fabrication," Engr Ye. V. Sokolov, Laureate of Stalin Prize, Exptl Welding Plant, Cen Sci Res Inst, Min of Transp (TsNII MPS)

"Avtogen Delo" No 11, pp 26-29

Results of exptl work by Exptl Welding Plant. Discusses plasticity of coating masses, passivation of ferromanganese, significance of granulation in electrode materials, drying process of electrodes, fabrication of austenitic electrodes, etc.

173T42

SOKOLOV, YE. V.: TARKHOV, N.A.

Resheniye elektrodnoogo komiteta VNITO svarshchikov po voprosu o dopustimosti vneshnikh povrezhdeniy na pokrytii elektrodov. Avtog. delo No. 23, 3, 1952. Uchenyy Sekretar' Komiteta.

Monthly List of Russian Accessions, Library of Congress, June, 1952. UNCLASSIFIED



✓

BYKOV, N.D.; FISHBERG, V.M.; DMITRIYEV, I.S.; SOKOLOV, Ye.V.; SHCHERBININ, A.A.

Electric arc welding of concrete reinforcements by the dip method in  
factories and on construction sites. Rats.i izobr.predl. v stroi.  
no.100:6-10 '54. (MLRA 8:10)

(Electric welding)

SOKOLOV, Ye.V., inzh.

Electrodes for arc welding, hard facing and built-up welding.  
Svar.proizv. no.11:24-27 N '57. (MIRA 10:12)  
(Electrodes) (Electric welding)

Sokolov, Ye. V.

135-58-4-15/19

AUTHORS: Matskevich, V.D., Candidate of Technical Sciences, and  
Sokolov, Ye.V., Engineer

TITLE: An International Conference on Welding in Poland (Mezhdu-  
narodnaya svarochnaya konferentsiya v Pol'she)

PERIODICAL: Svarochnoye Proizvodstvo, 1958, Nr 4, pp 42-44 (USSR)

ABSTRACT: An international welding conference was organized by the  
Komitet metallurgii Pol'skoy akademii nauk (Committee of  
Metallurgy of the Polish Academy of Sciences) and the In-  
stitut svarki i sektsiya svarki SIMP (Institute and Section  
of Welding SIMP) at the Metallurgicheskiy kombinat imeni  
Lenina in Novo-Huta near Cracow (Metallurgical Combine  
imeni Lenin) from the 24th to 26th October 1957. There  
were 250 participants including delegates from the USSR,  
GDR, Czechoslovakia, Hungary and Yugoslavia. The confer-  
ence heard the following reports: Master Engineer Veng-  
zhin, of the Institut svarki (Institute of Welding) at  
Glivitsy, on "Characteristic Properties of Electrodes With  
Basic-Type Coatings"; Professor Bela Tsarkoshi, from Hun-  
gary, on "Application of Welding in the Metallurgical In-

Card 1/3

An International Conference on Welding in Poland

135-58-4-15/19

dustry"; Professor Hilde from the Tsentral'nyy institut svarki GDR (Central Institute of Welding, GDR) Halle, on "Welding in Metallurgical Equipment Repair"; Master Engineer Sniegon from the Institut svarki (Institute of Welding) at Glivitsy, on "Roller Repairs by Welding Under Flux"; Academician Chabelka from the Institut svarki v Bratislave (Bratislava Institute of Welding), on "New Information on the Weldability of Materials"; Engineer Ye.V. Sokolov from the Opytno-svarochnyy zavod, Moskva (Experimental Welding Plant of Moscow), on "Electrodes For Arc Welding and Fusion in the Soviet Union"; Engineer Boder from the Tsentral'nyy institut svarki in Halle (the Halle Central Institute of Welding), on "Welding on Rollers Under Flux in Manual Welding With Heating"; Professor Radochkovich of Belgrade, on "The Welded Bridge on the Sava River at Belgrade"; Master Engineer T.Navrot from the Institut stroitel'noy tekhniki Varshava (the Warsaw Institute of Building Engineering), on "The Influence of Some Defects on the Work of Weld Joints Under Static Load"; Dotsent V.D. Matskevich, Candidate of Technical Sciences, from the Korablestroitel'nyy institut, Leningrad (the Leningrad Shipbuilding Institute), on "Prevention and Elimination of Weld Deformations in Shipbuilding";

Card 2/3

An International Conference on Welding in Poland

135-58-4-15/19

Master Engineer S. Drven'ga from Glivitsy, on "A Bridge Re-loading Machine of Combined, Weld and Riveted Design". There was also an exhibition of welding equipment designed by Polish industry, and of welding material specimens.

AVAILABLE: Library of Congress

Card 3/3

VLADIMIRSKIY, T.A., doktor tekhn.nauk; VROBLEVSKIY, R.V., inzh.;  
GLEBOV, L.V., inzh.; GODIN, V.M., kand.tekhn.nauk; GUZOV,  
S.G., inzh.; GULYAYEV, A.I., inzh.; YERSHOV, L.K., inzh.;  
KOCHANOVSKIY, N.Ya., kand.tekhn.nauk; LYUBAVSKIY, K.V., prof.,  
doktor tekhn.nauk; PATON, B.Ye., akademik, prof., doktor tekhn.  
nauk; RABINOVICH, I.Ya., kand.tekhn.nauk; RADASHKOVICH, I.M.,  
inzh.; RYKALIN, N.N., prof., doktor tekhn.nauk; SPEKTOR, O.Sh.,  
inzh.; KHRENOV, K.K., akademik, prof., doktor tekhn.nauk;  
CHERNYAK, V.S., inzh.; CHULOSHNIKOV, P.L., inzh.; SHORSHOROV,  
M.Kh., kand.tekhn.nauk; BRATKOVA, O.N., prof., doktor tekhn.nauk,  
nauchnyy red.; BRINBERG, I.L., kand.tekhn.nauk, nachnyy red.;  
GEL'MAN, A.S., prof., doktor tekhn.nauk, nachnyy red.; KONDRATOVICH,  
V.M., inzh.; nachnyy red.; KRASOVSKIY, A.I., kand.tekhn.nauk,  
nachnyy red.; SKAKUN, G.F., kand.tekhn.nauk, nachnyy red.;  
SOKOLOV, Ye.V., inzh., red.; IVANOVA, K.N., inzh., red.izd-va;  
SOKOLOVA, T.F., tekhn.red.

[Welding handbook] Spravochnik po svarke. Moskva, Gos.nauchno-  
tekhn.izd-vo mashinostroit.lit-ry. Vol.1. 1960. 556 p.

(MIRA 14:1)

1. AN USSR (for Paton, Khrenov). 2. ~~Chleny-korrespondenty~~ AN SSSR  
(for Rykalin, Khrenov).

(Welding--Handbooks, manuals, etc.)

MORDVINTSEVA, Aleksandra Vladimirovna, kand.tekhn.nauk; VOLODIN, Vasiliy  
Sergeyevich; SOKOLOV, Yevgeniy Vladimirovich

Specialists answer questions about welding. Tekh.mol. 28 no.11:  
8-11 '60. (MIRA 13:12)

1. Kafedra svarki Moskovskogo vysshego tekhnicheskogo uchilishcha  
im. Baumana (for Mordvintseva). 2. Glavnyy spetsialist po svarochnomu  
proizvodstvu Gosudarstvennogo komiteta Soveta Ministrov SSSR po  
avtomatizatsii i mashinostroyeniyu (for Volodin). 3. Glavnyy inzhener  
Moskovskogo opytnogo svarochnogo zavoda (for Sokolov).  
(Welding)

FRIDRIKHSEN, V.K., inzh.; SOKOLOVA, Z.N., inzh.; Prinimali uchastiye:  
SOKOLOV, Ye.V., inzh.; BULAT, S.I., inzh.; TANIN, R.V., inzh.;  
KURBATOV, G.A., tekhnik; BURKOVA, T.D., tekhnik; LADYKA, M.A.,  
laborant

Rolls on a semicontinuous hot rolling strip mill. Stal' 22  
no.9:817-821 S '62. (MIRA 15:11)  
(Rolls (Iron mills))



1696. AN IMPROVED INJECTION MIXER (FOR USE IN DISTRICT HEATING SYSTEMS). Kopyev S F and Sokolov E Y. (Teplo Silovoye Khozyaistvo 1933, 14, (8/9), 34-9; Trnals. Build, Res. Stn. 10/1943). (M. 5239)

1693. SELECTION OF THERMAL INSULATION FOR DISTRICT HEATING MAINS  
LAID IN CONDUITS. Sokolov E Y (Tepol-Silovoye Khosyastvo 1938  
14, (45), 19-22; Transl Building Res. Stn. 10-1943). (M. 5240)

SOKOLOV, Ye. Ya.

"Calculation and Construction of the Characteristics of Steam-Jet Compressors and Water-Jet Pumps with Cylindrical Mixing Chambers." Izv. VTI, No. 9 (1948)

1312. STEAM JET COMPRESSORS AND THEIR ADOPTION IN INDUSTRY.  
Sokolov, E. Ya. (Za Ekonomiyu Topliva (Fuel Econ.), 1949, (6),  
24-30).

Description, illustration and calculations for the designs of  
these fittings, which are similar to injectors. By the injection  
of a small quantity of high pressure steam, the pressure of exhaust  
steam, collected from turbines, steam hammers, etc., is raised  
sufficiently for it to be used in low pressure steam heating systems,  
etc. Under favourable conditions, there is a considerable saving  
of live steam. (L).

ASME-5LA METALLURGICAL LITERATURE CLASSIFICATION

13121 80-117  
821117 GME GMP 151

SOKOLOV, Ye. Ye.

58/49T56

USSR/Engineering  
Compressors, Steam  
Heating

Jun 49

"Steam-Jet Compressors and Their Use in Industry,"  
Prof Ye. Ye. Sokolov, 5 3/4 pp

"Za Bron Top" No 6

Describes compressors and a method to calculate  
their characteristics. Their use in heat and power  
stations and in heating industrial enterprises  
cuts consumption of live and high-pressure steam  
with a resultant increase in electric power. Also  
makes it possible to use exhaust steam at low  
pressure as a substitute for live steam in heavy  
pressure as a substitute for live steam in heavy  
58/49T56

USSR/Engineering (Contd)

Jun 49

and medium machine construction, metallurgy, the  
petroleum industry, etc.

58/49T56

SOKOLOV, PROF YE. YA.

PA 153T32

**USSR/Engineering - Heating, Steam  
Power Plants, Steam**

Nov 49

"Methods of Improving Steam Utilization in the Heat Economy of Industrial Enterprises," Prof Ye. Ya. Sokolov, 3 pp

"Prom Energet" No 11

Discusses two main ways of improving steam utilization at plants: (1) improving thermal efficiency of the process of transforming heat energy into mechanical energy and (2) increased utilization of exhaust steam. (1) includes such methods as placing specially designed turbine between plant

153T32

USSR/Engineering - Heating, Steam  
(Contd)

Nov 49

high-pressure boiler and workshop machines (steam hammers, etc). (2) includes surface and contact heaters, steam-jet compressors, etc. Includes five diagrams.

153T32

SOKOLOV, YE. YA., PROF.

USSR/Engineering - Heat, Equipment, Design Apr 52

"Theoretical and Experimental Investigation of Gas Jet Ejectors," Prof Ye. Ya. Sokolov, Dr Tech Sci, K.S. Andreyeva, Engr, Lab of Heating

"Iz v-s Teplotekh Inst" No 4, pp 14-17

Discusses method for calcg air ejectors with high expansion of working medium and low compression ratio of mixt, not over 1.1-1.2, and compares results of theoretical calcn with exptl characteristics, substantiating eq developed for characteristic of gas jet ejectors.

216T46

SOKOLOV, YE. YA., ANDREYEVA, K. S.,

Gases, Flow of

Theoretical and experimental investigation of gas jets. Izv. VTI 21 No. 4, 1952.

Monthly List of Russian Accessions, Library of Congress, August, 1952. UNCLASSIFIED.



SOKOLOV, YE. YA

Heating from Central Stations

Problems in operating municipal heating systems, Elek. Sta. 23 No.3, 1952. Dokl. Akad. Nauk  
Nauk

SO: Monthly List of Russian Accessions, Library of Congress, July 1952 ~~1952~~, Uncl.

YE 117.  
KOP<sup>3</sup>YEV, S.F., professor, doktor tekhnicheskikh nauk; SOKOLOV, Ye.Ya.,  
professor, doktor tekhnicheskikh nauk, retsenzent; LITVIN, A.M.,  
dotsent, kandidat tekhnicheskikh nauk, retsenzent.

[Heating] Teplosnabzhenie. Moskva, Gos. izd-vo lit-ry po stroitel'-  
stvu i arkhitekture, 1953. 495 p. (MLRA 7:5)

1. Kafedra teplotekhniki Kiyevskogo inzhenerno-stroitel'nogo instituta  
(for Sokolov). (Heating from central stations)

SOKOLOV, Ye. Ya.

"Immediate Aims of the Soviet Heat and Power Station Program," Elek. Sta. No.2, pp. 3-6, 1953.

Discusses economic factors of steam heat and power station program, treating advantages of system, means for max utilization of turbine exhaust heat in summer, greater economy of centralized stations and extension of hot water supply facilities. In the case of medium-pressure turbine, claims combined system saves 140 kg specific fuel (75 kg due to combined heat and power generation; 65 due to central heat supply) for 1 mcal heat, compared with separate generation.

255 T53

SOKOLOV, Yefim Yakovlevich, professor, redaktor; GROMOV, Nikolay Konstantinovich;  
SAFONOV, Aleksandr Petrovich; PAKSHVER, V.B., redaktor; FRIDKIN,  
A.M., tekhnicheskii redaktor.

[Operation of heating systems] Eksploatatsiia teplovykh setei. Pod  
red. E. Ia. Sokolova. Moskva, Gos.energ.izd-vo, 1955. 352 p.  
(Heating) (MLRA 9:1)

SOKOLOV, Ye.Ya., professor; ZINGER, N.M., kandidat tekhnicheskikh nauk;  
SHISHOV, N.P., inzhener.

High-pressure steam jet compressor. Elek.sta. 25 no.8:12-15 Ag '54.  
(Compressors) (MLRA 7:9)

SOKOLOV, Yefim Yakovlevich, professor; SAFONOV, A.P. , redaktor; SKVORTSOV,  
I.M., tekhnicheskiy redaktor

[District heating systems] Teplovye seti. Izd. 2-oe, perer. Moskva,  
Gos.energ. izd-vo, 1956. 236 p. (MLRA 9:11)  
(Heating from central stations)

14(6).

SOV/112-59-1-339

Translation from: Referativnyy zhurnal. Elektrotehnika, 1959, Nr 1, p 46 (USSR)

AUTHOR: Sokolov, Ye. Ya.

TITLE: Ejecting Outfit for Pneumatic Filling of Underground Heat-Pipeline Tunnels  
With a Heat Insulator

PERIODICAL: Tr. Nauchno-tekhn. soveshchaniya po proyektir. i str-vu teplovykh  
setey. M.-L., Gosenergoizdat, 1956, pp 65-79

ABSTRACT: Restoring heat insulation of underground heating lines is rather difficult because it requires opening the street pavement and tunnels. Hence, restoring heat insulation without street opening, by filling the tunnels with liquid foam concrete or with a loose insulator, is of great interest. An ejecting outfit for pneumatic heat-insulation restoration developed by VTI is described. An ejector for pneumatically feeding the heat insulator is presented, as well as the design of its principal dimensions. Characteristic curves of an experimental ejector are presented. Formulae are deduced for selecting the

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SOV/112-59-1-339

Ejecting Outfit for Pneumatic Filling of Underground Heat-Pipeline Tunnels . . . .

hose diameter and calculating the pressure loss in the hose. VTI built an experimental ejector and turned it over to the Mosenergo Heating System for tentative operation. It is noted that the pneumatic VTI ejection-jet outfit can be recommended for practical applications. The methods suggested for designing the outfit adequately agree with experimental data. Need is noted for further improvements in the performance of such outfits.

M. L. Z.

Card 2/2



Subject : USSR/Engineering AID P - 4958

Card 1/1 Pub. 110-a - 7/21

Authors : Sokolov, Ye. Ya., Dr. Tech. Sci., Ya. M. Rubinshteyn,  
Dr. Tech. Sci., N. M. Zinger, Kand. Tech. Sci.

Title : Power and economics of the district heating of large cities.

Periodical : Teploenergetika, 8, 31-38, Ag 1956

Abstract : The authors present the results of the comparison of different district heating systems (open and closed) fed from different heat and electric power plants. These plants are equipped by turbines of different types, and are located at different distances from the city. 7 tables, 4 diagrams.

Institution : All-Union Heat Engineering Institute

Submitted : No date

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 3, p 56 (USSR) SOV/124-57-3-3045

AUTHOR: Sokolov<sup>1</sup>ye, Ye. Ya.

TITLE: Some Problems of Hydraulic Calculations of Heating Networks  
(Nekotoryye voprosy gidravlichesкого rascheta teplovykh setey)

PERIODICAL: Tr. Mosk. energ. in-ta, 1956, Vol 24, pp 106-116

ABSTRACT: The problems of the dependence of the friction coefficient of pipes upon the character of the wall roughness and the regime of the flow are clarified; the author also sheds light on the selection of an equation for the hydraulic calculations of heating networks. A study is conducted on the relationships obtained by A. Nikuradze, B. L. Shifrinson, G. A. Murin, F. A. Shevelev, and G. K. Filonenko. Recommendations are given concerning the application of these relationships. General laws are worked out for the calculation of the flow distribution in heating networks (the example of a two-pipe radial network). A formula is given concerning the discharge rate of a distribution system for any combination of consumer needs. The derivation of an equation for the calculation of the physical characteristics is given for a two-pipe heated-water network for

Card 1/2

Some Problems of Hydraulic Calculations of Heating Networks

SOV/124-57-3-3045

some typical cases of load variation along the network for (a) a transit main, (b) a main with the load distributed equally along its length, and (c) a main with a combined load distribution. Bibliography: 6 references.

Yu. M. Savvin

Card 2/2

SOKOLOV, E. YA.

1329. INCREASED DELIVERY OF A FEED PUMP BY USE OF WATER-JET EJECTOR.  
 Andreeva, K.S., Einger, N.M. and Sokolov, E. Ya. (Elekt. Sta. (Pir Sta.,  
 Moscow), Jan. 1956, vol. 27, 16-20). Experiments with the use of ejectors  
 for increasing the delivery of turbine pumps at two high-pressure power  
 plants are described. Discharge capacity of the pumps was 270 tons per  
 hour at 156 atm, suction pressure (above the saturated-steam pressure at  
 feedwater temperature) being 12 m water head, and parameters of water in  
 front of turbine 29 atm and 400°C, waste steam pressure 1.2-2.5 atm and speed  
 5000 rev/min. Owing to the low position of the generators the excess  
 pressure head at the nozzle was 8-9 m instead of 12 m, causing excessive  
 cavitation and eventually collapse of the pump 30-60 tons per hour short of  
 the rating. To increase the maximum delivery and the pressure at the  
 nozzles, water-jet ejectors were installed which resulted in improving the  
 delivery by 40-50 tons per hour. C.E.A.

183

BADYL'KES, I.S., doktor tekhnicheskikh nauk; BELINSKIY, S.Ya., kandidat tekhnicheskikh nauk; GIMMEL'FARB, M.L., kandidat tekhnicheskikh nauk; KALAFATI, D.D., kandidat tekhnicheskikh nauk; KERTSELLI, L.I., professor; KOVALEV, A.P., doktor tekhnicheskikh nauk; KONFEDERATOV, I.YA., doktor tekhnicheskikh nauk; LAVROV, V.N., doktor tekhnicheskikh nauk; LEBEDEV, P.D., doktor tekhnicheskikh nauk; LUKNITSKIY, V.V., doktor tekhnicheskikh nauk [deceased]; PETUKHOV, B.S., doktor tekhnicheskikh nauk; SATANOVSKIY, A.Ye., kandidat tekhnicheskikh nauk; SEMENENKO, N.A., doktor tekhnicheskikh nauk; SMEL'NITSKIY, S.G., kandidat tekhnicheskikh nauk; SOKOLOV, Ye.Ya., doktor tekhnicheskikh nauk; CHISTYAKOV, S.F., kandidat tekhnicheskikh nauk; SHCHEGLYAYEV, A.V.; BEL'KIND, L.D., doktor tekhnicheskikh nauk, redaktor; GLAZUNOV, A.A., doktor tekhnicheskikh nauk, redaktor; GOLUBTSOVA, V.A., doktor tekhnicheskikh nauk, redaktor; ZOLOTAREV, T.L., doktor tekhnicheskikh nauk, redaktor; IZBASH, S.V., doktor tekhnicheskikh nauk, redaktor; KIRILLIN, V.A., redaktor; MARGULOVA, T.Kh., doktor tekhnicheskikh nauk, redaktor; MESHKOV, V.V., doktor tekhnicheskikh nauk, redaktor; PETROV, G.N., doktor tekhnicheskikh nauk, redaktor; SIROTINSKIY, L.I., doktor tekhnicheskikh nauk, redaktor; STYRIKOVICH, M.A., redaktor; SHNEYBERG, Ya.A., kandidat tekhnicheskikh nauk, redaktor; MATVEYEV, G.A., doktor tekhnicheskikh nauk, redaktor; MEDVEDEV, L.Ya., tekhnicheskiiy redaktor

[History of power engineering in the U.S.S.R.; in three volumes]  
Istoriia energeticheskoy tekhniki SSSR; v trekh tomakh. Moskva, Gos.energ.izd-vo.

(Continued on next card)

1957

, BADYL'KES, I.S.---(continued) Card 2.

Vol. 1. [Heat engineering] Teplo tekhnika. Avtorskii kollektiv toms  
Badyl'kes i dr. Red. -sost. toms I.IA.Konfederatov. 1957. 479 p.  
(MIRA 10:8)

1. Chlen-korrespondent Akademii nauk SSSR (for Shcheglyayev,  
Kirillin, Styrikovich). 2. Moscow. Moskovskiy energeticheskiy  
institut  
(Heat engineering--History)

SOV/124-58-11-12594

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 11, p 95 (USSR)

AUTHOR: Sokolov, Ye. Ya.

TITLE: Fundamental Problems in the Hydraulic Design Calculation of Heating Networks (Osnovnyye voprosy gidravlicheskogo rascheta teplovykh setey)

PERIODICAL: V sb.: Proyektir. gor. teplovykh setey. Moscow-Leningrad. Gosenergoizdat, 1957, pp 12-20

ABSTRACT: The author bases his considerations on experimental and theoretical investigations conducted during the past 10 to 15 years, also on accumulated operational material, all of which enables him to refine the fundamental laws employed in the hydraulic design calculation of heating networks and to conduct a better-substantiated approach to the selection of a suitable design roughness of pipe lines. He adduces a number of concepts which should be borne in mind in the compilation of the chapter on "The Hydraulic Calculation of Networks" in the new compendium "Guiding Directions on the Design of Heating Networks" (Rukovodnyashchiye ukazaniya po proyektirovaniyu teplovykh setey). The following subjects are touched upon:

Card 1/2

Fundamental Problems in the Hydraulic Design Calculation (cont.) SOV/124-58-11-12594.

Selection of design values for the equivalent roughness, calculation of the hydraulic regime prevailing in heating networks, fundamental formulas of hydraulic calculation (a formula for the loss of head per unit length in pipe lines, formulas for the coefficient of hydraulic friction losses, etc.). The subject of the determination of the calculated water-discharge rate is examined in especial detail. It is recommended that the calculated water-discharge rate (in an open hot-water supply system) per 1 Mkal/hr of maximal heat load be assumed to be as follows: 1) For main conduits, 12.6 ton/hr; 2) for main branch lines, 15 ton/hr; 3) for district networks, 18 ton/hr. Bibliography: 10 references.

Yu. M. Savvin

Card 2/2



SOKOLOV, Ye.Ya.; SHAPKIN, I.F.

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(Hot-water heating) (Boilers--Incrustations)

SOKOLOV, E.YA.

V. 1919. BASIC PROBLEMS IN THE DEVELOPMENT OF DISTRICT HEATING IN THE  
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(Heating from central stations)

KUTATELADZE, Samson Semenovich; BORISHANSKIY, Veniamin Mironovich;  
MOCHAN, S.I., RED.: ARMAND, A.A., retsenzent; BERMAN, L.D.,  
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retsenzent; PIROGOV, M.S., retsenzent; RYVKIN, S.A., retsenzent;  
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[Handbook on heat transmission] Spravochnik po tepleperedache.  
Leningrad, Gos. energ. izd-vo, 1958. 414 p. (MIRA 12:1)  
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LUKNITSKIY, V.V. [deceased], doktor tekhn. nauk, prepodavatel'; SOKOLOV, Ye.Ya., doktor tekhn. nauk, prepodavatel'; LEBEDEV, P.D., doktor tekhn. nauk, prepodavatel'; GIMMEL'FARB, M.L., kand. tekhn. nauk, prepodavatel'; LAVROV, N.V., doktor tekhn. nauk, prepodavatel'; IVANTSOV, G.P., kand. tekhn. nauk, prepodavatel'; GOLUBKOV, B.N., kand. tekhn. nauk, prepodavatel'; SHERSTYUK, A.N., kand. tekhn. nauk, prepodavatel'; NIKITIN, S.P., kand. tekhn. nauk, prepodavatel'; CHISTYAKOV, S.F., kand. tekhn. nauk., prepodavatel'; DUDNIKOV, Ye.G., doktor tekhn. nauk, prepodavatel'; BAKLASTOV, A.M., kand. tekhn. nauk, prepodavatel'; VIKHBA, M.I., kand. tekhn. nauk, prepodavatel'; GERASIMOV, S.G., prof., red.; KAGAN, Ya.A., dots., red.; AYZWNSHTAT, I.I., red.; VORONIN, K.P., tekhn. red.; LARIONOV, G.Ye., tekhn. red.

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SECRET

96-4-1/24

AUTHORS: Sokolov, Ye. Ya. (Dr. Tech.Sc.), Rubinshteyn, Ya. M. (Dr. Tech.Sc.), Zinger, F.J. (Cand.Tech.Sc.), Bunin, V.S. (Engineer) and Andreyeva, K. S. (Engineer).

TITLE: The Selection of a High Power Turbine for District Heating Plants (Vybor tipa teplofikatsionnoy turbiny bol'shoy moshchnosti).

PERIODICAL: Teploenergetika, 1958, vol. 5 No. 4, pp 3-11 (USSR)

ABSTRACT: Heat-supply turbines produced for steam conditions of 90 atms and 500°C, comprise types BT-25, with controlled district-heating pass-out at a pressure of 1.2-2.5 atms, and BPT-50, with two regulated steam pass-outs at pressures of 1.2-2.5 and 13±3 atms. Their performance does not satisfy modern requirements for district-heating of large towns, either in respect of unit output or pass-out steam conditions. It is important to increase the efficiency of heat and electric power stations; the prime need in these systems is to increase the amount of electric power generated. District-heating turbines should be 50 and 100 MW, with initial steam conditions of 130 atms and 565°C, as now used for condensing sets. Many investigators have shown that electrical output can be raised by adopting multi-stage heating of system-water instead of using only the pressure of 1.2 atms. If

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possible, the lower limit of steam pressure in the pass-out should be 0.5 atms. The pressure of the lower pass-out may be constant under all conditions, except nearly pure condensing conditions, or may be increased to 0.8-0.9 atms as suggested by B. V. Rudomino. It would be also advisable to provide for utilisation in the winter period of the ventilating flow of steam to the condenser. This steam can be used to heat make-up water in open heat-supply systems or to heat returned water in closed systems. Possible types of turbine are discussed. The present practice of having comparatively high reduction factors in urban district-heating stations gives a very high heat-loading on pass-out turbines and a very high steady electrical load throughout almost the entire heating season. Therefore, later stages of system-water heating could be supplied with steam from unregulated tapplings. When the district-heating station is located out of town, the pressure level in the outermost unregulated tapping in the water system could be limited to about 4 atms. When the station is a considerable distance from the centre of the thermal load, a pressure of the order of 14-16 atms may be advisable in the last unregulated

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tapping on the run of water. The use of reheat in heat-supply stations gives less economy than it does in ordinary condensing stations. Nevertheless, reheat is advantageous in turbines with pass-outs at 0.5, 1.5 and 4 atms; it is inadvisable for turbines with pass-out pressures greater than 0.5-2-6-16 atms. The manufacture of two types of 50 and 100 MW heat-supply turbines is recommended. One is a turbine with initial steam conditions of 130 atms, 565°C, with reheat only on the 100 MW size; the lower limit of pass-out pressure should be 0.5 atms, with unregulated district-heating pass-outs of 1.5 and 4 atms. This turbine is denoted  $\Pi BT_{0.5-4}$ . The second type of turbine has the same initial steam conditions without reheat and the same lower limit of pass-out pressure of 0.5 atms but with unregulated pass-outs for district heating at 2.0, 6.0 and 16.0 atms. This turbine will be denoted  $\Pi BT_{0.5-16}$ .

To evaluate these two types, calculations were made of steam flows from the pass-outs and of steam flows in the turbine sections; also of live steam consumption Card 3/7 for various ambient temperatures, temperature curves and



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systems of heat supply, etc. In comparing different types of turbine it was assumed that they supplied a region of the same calculated thermal loading. Since the turbine is designed for conditions in which the flow of steam to the condenser is a minimum, the requisite turbine power will vary for different systems of heat supply and temperature gradients, and in no case does it correspond to the standard output of turbo-generator. In comparing efficiencies of different types of turbine this is unavoidable and immaterial. The standard thermal loading of the district was taken as 400 M kcal/hr, of which half is provided for by pass-out steam; a boiler house provides for the remainder and for peak loads. The turbine designs were carried out for the thermal circuits shown in Figs. 1 and 2. For both turbines the feed water was assumed to be heated to a temperature of 232°C. The steam pressures in the low-pressure regenerative tappings corresponded to those for district-heating schemes. The efficiencies of the turbines were calculated in a way very similar to that formalised by the firm of General Electric in 1952. For turbine type  $\Pi BT_{0.5} - 16$ , the

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only case considered was that of stations outside towns, which requires that the system water be heated to  $180^{\circ}\text{C}$ . For turbine  $\Pi\text{BT}_{0.5-4}$  the case considered was that of a series circuit comprising the peak boiler-house, the district-heating heaters and a station alternatively in or out of town. Temperature and water-flow graphs for the closed systems are given in Figs. 3 and 4 for both types of turbine. To compare these variants in respect of fuel consumption, the electrical outputs were equated in all cases to 135 MW. The respective fuel consumptions, obtained with identical thermal and electrical loadings, are given in Table 1, which shows that the use of turbine  $\Pi\text{BT}_{0.5-4}$  instead of turbine  $\Pi\text{BT}_{0.5-16}$  gives a fuel economy of about 5%. For turbine  $\Pi\text{BT}_{0.5-4}$  the fuel consumption is about 1% less when the system water temperature is  $150^{\circ}\text{C}$  than when it is  $180^{\circ}\text{C}$ . The comparison also shows that for the same thermal and electrical loads turbine  $\Pi\text{BT}_{0.5-4}$  has 7% less fuel consumption than turbine  $\Pi\text{BT}_{0.5-16}$ . A technical and economic comparison is then made between the different types of heat-supply turbine. The pros and cons of using the two kinds of turbines in an out-of-town station are discussed at some

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length. The advisability of installing one or the other depends on the amortisation time of the additional cost of the more expensive turbine, and a formula is given to determine this time. The main calculations were made for a district with a maximum thermal loading of 400 M kcal/hr, and ambient air temperatures of -36, -30 and -22°C. Table 2 gives annual fuel economy figures for various climatic regions and various heat-supply systems resulting from the installation of a turbine type  $\Pi BT_{0.5-4}$  with the given thermal and electrical loads. The table shows that this turbine saves more fuel than turbine type  $\Pi BT_{0.5-16}$ . Calculations are also made for the open circuit system of heat-supply. The case of an out-of-town station and a peak boiler house in the town is considered. Calculations were made of the extra initial costs of the heating system with series connection of the power station and peak boiler house as compared with parallel connection. The results are given in Table 3. Graphs of the amortisation time of the initial costs against the radius of service of the thermal circuit are given in Fig. 5 and Card 6/7 relate to the climatic conditions of Moscow, with turbines

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$\Pi BT_{0.5-4}$  and  $\Pi BT_{0.5-16}$ . Similar figures were also found for other climatic conditions. As the ambient temperature gets lower and the number of hours of utilisation of the installed thermal capacity of the station increases, the amortisation time of the additional capital expenditure decreases slightly. Only two factors have a major influence on the choice of type of turbine; the initial outlay and the fuel consumption. The use of turbine type  $\Pi BT_{0.5-4}$  instead of  $\Pi BT_{0.5-16}$  gives about 5% overall fuel economy but greater capital cost. Assuming the climatic conditions of Moscow, and amortisation over five years, the field of application of turbine type  $\Pi BT_{0.5-4}$  is indicated in Table 4 for several sizes of heating system. In most cases turbine  $\Pi BT_{0.5-4}$  is more suitable and therefore recommended for development in outputs of 50 or 100 MW.

There are 5 figures, 4 tables and 2 Russian references.

ASSOCIATION: All-Union Thermo-Technical Institute. (Vsesoyuznyy Teplo tekhnicheskiy Institut).

AVAILABLE: Library of Congress

SOV/96-58-7/27

AUTHOR: Sokolov, Ye.Ya., Doctor of Technical Sciences

TITLE: Thermal Characteristics of Heat Exchange Apparatus  
(Teplovyye kharakteristiki teploobmennyykh apparatov)

PERIODICAL: Teploenergetika, 1958, Nr 5, pp 38 - 43 (USSR).

ABSTRACT: It is generally possible to calculate the characteristics of thermal installations under variable operating conditions but there are still no simple methods applicable to the surface heat-exchange equipment that is widely used in thermal power stations and district-heating systems. The designed output of the equipment is usually known only for the specific design or particular test conditions. It is often not possible to predict the performance under other conditions. However, it is possible to derive equations of characteristics by which the output of the equipment under variable conditions can be determined with an accuracy sufficient for practical purposes: the basis is a single parameter of the apparatus that can be calculated or determined experimentally. The derivation of such an equation is given in the article. The main reason why, hitherto, there has been no simple equation for the characteristics of heat-exchange equipment is that the relevant balance equations and heat-transfer equations cannot

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be solved simultaneously in explicit form so long as the heat-transfer equation contains the mean logarithmic temperature difference. However, a linear expression can be chosen for the mean temperature difference and will give sufficiently accurate agreement with the mean logarithmic difference over a wide range of the ratio of the temperatures of the heating and heated substances. A linear formula for the mean temperature difference is given that is valid for the circulation of heat-carrying fluids in heat-exchange apparatus, shown in Figures 1 and 2. Different factors that must be used in the equation according to the relative circulations are tabulated. Certain partial modifications of the basic formula are given for particular cases and the range over which it can be used without deviating from the logarithmic mean temperature difference by more than  $\pm 6.5\%$  are stated. An equation is then derived for the characteristics of heat-exchange apparatus. Modified forms of the equation are given for the two cases when the process of heat exchange is accompanied by change of phase condition of one or both of the media.

The use of these equations to calculate the characteristics of apparatus of given dimensions is explained, together with  
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various ways of simplifying the work. The expression for the thermal output of the equipment, per 1 °C maximum temperature difference between heating and heated medium, may be expressed graphically in different ways. For example, Figure 3 gives characteristics of a water/water heater with two constant rates of flow of heated water and variable flow of heating water. The curves in this graph are then discussed. For verification, the equations derived in the article were compared with the results of tests on various heat-exchange apparatus operating under variable conditions. The characteristics of a power station district-heating system heater, manufactured by the Bryanskiy parovozostroitel'nyy zavod (Bryansk Locomotive Works) are compared in Figure 4 with the results of tests under variable conditions. During the tests, the flow of system water ranged from 600 - 1800 t/h and the system water temperature at the inlet to the heater from 52 - 88 °C; the pressure of the heating steam varied from 1.15 to 2.16 atm. In Figure 5, a comparison is made between the results of these tests and the calculated characteristics of the 5th regenerative heater of turbine type VT-25-4 of the LMZ (Leningrad Metal Works). Figure 6 compares

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calculated characteristics and test results on a water/water heater of a type used in the Moscow district heating system. Figures 7 and 8 deal similarly with a further water/water district heating system heater and a water/air plate calorifier. It is concluded that the equations for the characteristics of heat-exchange apparatus give satisfactory agreement with experimental results. The practical use of these thermal characteristics is of great importance; they make it easy to compare the effectiveness of operation of different heat-exchange equipment and also to judge of its condition in service. There are 8 figures, 1 table and 6 Soviet references.

ASSOCIATION: MEI

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1. Heat transfer--Equipment 2. Heat exchangers--Theory 3. Heat exchangers--Design 4. Heat exchangers--Thermal properties



SOKOLOV Ye. Ya

AUTHOR: Shpeyer, M.G. (Engineer)

SOV/96-59-6-19/22

TITLE: Conference on the Construction of Thermal Systems  
(Soveshchaniye po voprosam stroitel'stva teplovykh setey)

PERIODICAL: Teploenergetika, 1959, Nr 6, pp 90-91 (USSR)

ABSTRACT: An All-Union Conference on the construction of thermal systems was held in Moscow on the 11th - 13th March; it was convened by the Moscow Directorate of the Scientific-Technical Society of the Power Industry (District Heating Section). Representatives of the Acad.Sci. USSR, GOSSTROY USSR, GOSPLAN USSR, Councils of National Economy, design, operating, and erection organisations, and educational and research institutes participated in the conference. Thirteen reports were read and a number of communications were made. Ye.Ya. Sokolov read a report on 'The present state and future prospects of district heating'. The reports by Engineer S.Ye. Zakharenko of Mosteploset'stroy and Engineer A.A. Gerbko (Mospodzemstroy) dealt with the need for a review of methods of laying heating systems. Engineer A.I. Odnopozov (Glavleningradstroy) described the specially difficult conditions of laying heating systems in

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Conference on the Construction of Thermal Systems

Leningrad. The report of Cand.Tech.Sci. A.A. Skvortsov of the All-Union Thermal-Technical Institute stressed the need to mechanise the construction of heating systems as far as possible. Engineer A.A. Lyamin of Mosenergoprojekt described the use of ready-made reinforced concrete ducts for the construction of large diameter heat supply pipes. Cand.Tech.Sci. V.P. Vital'yev of ORGRES discussed costs of different methods of making heating systems. Engineer M.G. Shpeyer of Teploelektroprojekt discussed the mechanical strength of different types of heating supply system construction. The Conference noted the need to introduce new types of construction and thermal insulation. The Conference requested various responsible bodies to test a number of new types of construction. Other detailed recommendations were made. There are no figures, no references.

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PHASE I BOOK EXPLOITATION

SOV/4691

Sokolov, Yefim Yakovlevich, and Nikolay Mikhaylovich Zinger

Struynnye apparaty (Jet Apparatus) Moscow, Gosenergoizdat, 1960. 207 p.  
5,000 copies printed.

Ed.: T.A. Kolach; Tech. Ed.: G.Ye. Larionov.

PURPOSE: This manual is intended for the engineering personnel of design and operational organizations and also for students of schools of higher education.

COVERAGE: The book discusses theory and methods for calculating jet apparatus. The basic design equations are illustrated by examples, and a classification of jet apparatus is given. According to the foreword, the authors have attempted to retain a unified approach although the types and applications of apparatus described vary greatly. Along with numerical relationships for determining the optimum parameters and basic dimensions of the apparatus, the authors present equations of the characteristics describing the operation of jet apparatus under a variable regime. Knowledge of characteristics is particularly important in selecting a control system and an efficient regime for utilization of jet

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ACC NR: AM6029198

Monograph

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Stepanov, Yuriy Aleksandrovich; Gini, Enriko Chel'sovich; Sokolov, Yevgeniy  
Aleksseyevich; Matveyko, Yuriy Pavlovich

Casting of thin-walled structures (Lit'ye tonkostennykh konstruktsiy) Moscow, Izd-vo  
"Mashinostroyeniye", 1966. 254 p. illus., biblio. Errata slip inserted. 4500  
copies printed.

TOPIC TAGS: panel casting, pressure casting, metal casting

PURPOSE AND COVERAGE: This book is intended for engineering and scientific research  
workers concerned with problems of casting. It may also be useful to students of  
schools of higher education specializing in machine-building. The book presents  
results of work completed by the authors at the foundry laboratory of the Moscow  
Higher Technical School im. Bauman (MVTU) in connection with casting of thin-  
wall structures. On the basis of theoretical concepts of the interaction between  
the casting and the mold, various Soviet and non-Soviet studies concerning the  
theory of producing thin-wall panel castings are summarized.

TABLE OF CONTENTS [Abridged]:

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Part I. Filling the Mold

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UDC: 621.74.032